Cinemavision™ Subwoofer

CVSUB50

Service Manual

JBL Consumer Products
250 Crossways Park Dr.
Woodbury, New York 11797

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CVSUB50 SPECIFICATIONS

Amplifier Power (RMS):	400 Watts
Driver:	12" (305mm) PolyPlas™
Inputs:	LFE Preamp level
Frequency Response:	22Hz – Low-pass crossover setting at signal source
Dimensions (H x W x D):	18-3/4" x 12" x 18-1/4" (476mm x 305mm x 464mm)
Weight:	49 lb/22.3kg

JBL continually strives to update and improve existing products, as well as create new ones. The specifications and details in this and related JBL publications are therefore subject to change without notice.

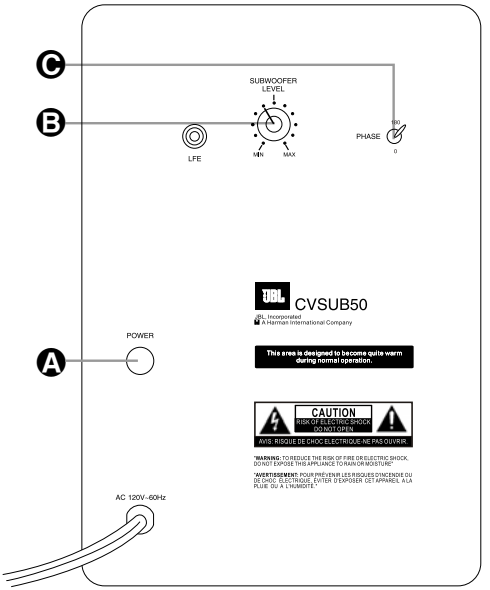
Cinema Vision Subwoofer		CVSUB50			
LINE VOLTAGE	**Yes/No**	**Hi/Lo Line**	**Nom.**	**Unit**	**Notes**
US 120vac/60Hz	Yes	108-132	120	Vrms	Normal Operation
EU 230vac/50-60Hz	Yes	207-264	230	Vrms	Normal operation, MOMS required
Asia 100vac/50Hz	Yes	90-110	100	Vrms	Normal Operation
Parameter	**Specification**	**Unit**	**QA Test Limits**	**Conditions**	**Notes**
Amp Section					
Type (Class AB, D, other)	D	---			
Load Impedance (speaker)	4	Ohms		Nominal	Z-curve required
Rated Output Power	290	Watts		Regulated 125 V line	5% tolerance applies
THD@ Rated Power	1	%		22k filter, 50Hz	290 W +/- 5 %
THD @ 1 Watt	0.2	%		22k filter, 50Hz	
DC Offset	N/A	mV-DC	< 20	@ Speaker Outputs	
Damping factor	20	N/A	> 15		measured at 50 Hz
Input Sensitivity					
Line Input	350	mVrms		300 W @ 120Hz	
Speaker/Hi Level Input	N/A				
Signal to Noise					
SNR-A-Weighted	100	dBA		relative to rated power	A-Weighting filter
SNR-unweighted	70	dBr		relative to rated power	22k filter
SNR rel. 1W-unweighted	60	dBr		relative to 1W Output	22k filter
Residual Noise Floor	2	mVrms		Volume @ max, using RMS reading DMM/VOM (or A/P)	
Residual Noise Floor	1	mVrms(max)		Volume @ max, w/ A/P Swept Bandpass Measurement (Line freq.+ harmonics)	
Input Impedance					
Line Input	5 k	ohms		Nominal	
Active Filters					
Low Pass (fixed or variable)	FIXED	--			
Frequency	240	Hz			
Slope	12	dB/Octave			
Q	Butterworth	Damping			
Subsonic filter (HPF)	FIXED	--			
Frequency	31	Hz			
Slope	12	dB/Octave			
Q	1.5	Damping			
Friend Circuit	FIXED	--			
Frequency	62 Hz	Hz		notch filter	
Slope	12	dB/Octave			
Q	3	Damping			
Switches					
Main Power ON/OFF	YES	--			
Type	push-button	--		Located on amp plate	TV-8
Polarity Switch	YES	--		"DOWN": 0°; "UP": 180°	
Type	mini togle	--		Located on amp plate	
Limiter (yes/no)	YES				compressor and limiter
THD at Max. Output Power	less than 2	%		Maximum Output Power	Maximum THD as a result of limiting.
Output Volume Control					
Volume Control Pot	YES	--		Located on amp plate	
Taper (lin/log)	log A taoer	--			
@ minimum setting	no output				
Input/Output Configuration					
LFE In	YES	--			RCA phono jack, gold with purple insulator
Signal Sensing (ATO)					
Auto-Turn-On (yes/no)	YES	--			
ATO Input Test Frequency	100	Hz			
ATO Input Threshold	2	mV	typ.		
ATO Low Pass cutoff	400	Hz	450	ATO-LPF for noise immunity	
ATO Turn-on time	1	ms	10	Amp connected and AC on, then input signal applied (1 W output)	
Auto Mute / Turn-OFF Time	10	minutes	5 < t < 15	Time before muting, after signal is removed	
Power on Features					
Power on Delay time	greater than 2	sec.		When AC Power is Applied	
Power on LED	YES	--		bi-color LED located remotely on port facia	
Normal On/Off	green / red	color		ATO mode only (no manual overide)	
ATO	--	color		"Active": green; "Standby": red	
Transients/Pops					
ATO Transient	5	mV-peak		@ Speaker Output	
Turn-on Transient	30	mV-peak		@ Speaker Output	AC Line cycled from OFF to ON
Turn-off Transient	30	mV-peak		@ Speaker Output	AC Line cycled from ON to OFF

Parameter	Specification	Unit	QA Test Limits	Conditions	Notes
Efficiency					
Stand-by Input Power	12	Watts	typ.	@ nom. line voltage	
AC Power Cons.@1W	13	Watts	typ.	@ nom. line voltage	
Power Cons.@rated power	375	Watts	typ.	@ nom. line voltage	Input power measured is REAL Watts, not VA
Efficiency	70	%	typ.	@ nom. line voltage	
Protection					
Short Circuit Protection	YES	--		Direct short at output	
Thermal Protection	YES	--		threshold ~ 65 deg. C at panel	
DC Offset Protection	YES	--		DC present at Speaker Out leads	Relay for driver/fire protection
Line Fuse Rating (120 V)	3.15	Amps		Type ADL or MDL	Internal panel mount fuse holder

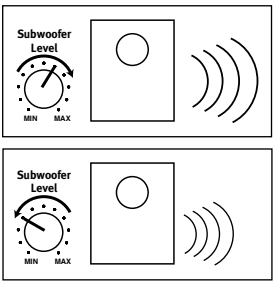
SUBWOOFER OPERATION

Press the Master Power switch (marked "Power" Ⓐ) in to the On position to use the subwoofer. The CVSUB50 subwoofer will automatically turn on or go into standby (sleep) mode as described below. When your receiver or amplifier is off, or is not sending program material to the subwoofer, the subwoofer will be in standby mode (LED on front of CVSUB50 will be red). When the subwoofer senses an audio signal, it will automatically turn on (LED will be green). If the subwoofer does not sense a signal after approximately 20 minutes, it will automatically go into standby mode.

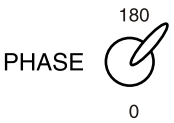
If you will be away from home for an extended period of time, or if the subwoofer will not be used, switch the Master Power switch Ⓐ to the Off position by pressing it until it pops out.


C
B
A
SUBWOOFER LEVEL
LFE
MIN
MAX
PHASE
180
0
POWER
CVSUB50
JBL Incorporated
A Harman International Company
This area is designed to become quite warm during normal operation.
CAUTION
RISK OF ELECTRIC SHOCK DO NOT OPEN
AVIS: RISQUE DE CHOC ELECTRIQUE NE PAS OUVRIR.
"WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE"
"AVERTISSEMENT: POUR PRÉVENIR LES RISQUES D'INCENDIE OU DE CHOC ELECTRIQUE, EVITER D'EXPOSER CET APPAREIL A LA PLUIE OU A L'HUMIDITE."
AC 120V~60Hz

VOLUME



Volume may be adjusted using the Subwoofer Level control Ⓑ as shown.



The Phase Control determines whether the subwoofer's piston-like action moves in and out in phase with the main speakers or opposite the main speakers. There is no correct or incorrect setting. Proper phase adjustment depends on several variables, such as subwoofer placement and listener position. Adjust the Phase Switch Ⓒ to maximize bass output at the listening position.

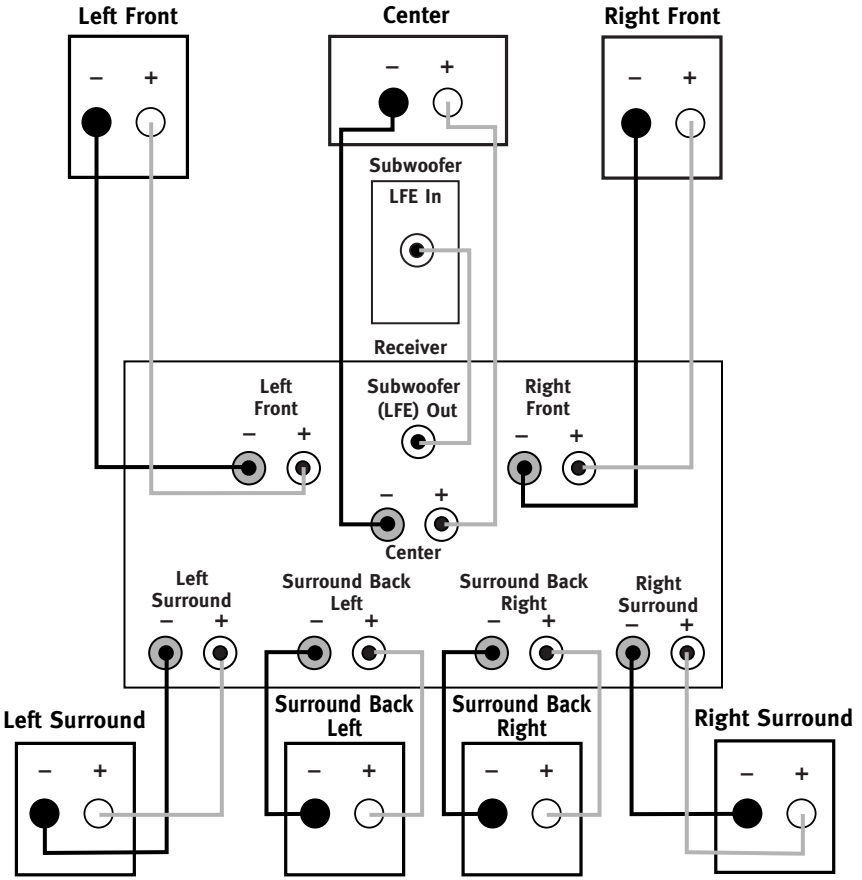
Remember, every system, room and listener is different. There are no right or wrong settings; this switch offers the added flexibility to adjust your subwoofer for optimum performance for your specific listening conditions without having to move your speakers. If at some time in the future you happen to rearrange your listening room and move your speakers, you should experiment with the phase switch in both positions, and leave it in the position that maximizes bass performance.

SYSTEM CONNECTION

The CVSUB50 subwoofer is equipped with only one input – a dedicated low-frequency effects (LFE) input. Since the LFE channel is by definition limited to only the lowest portion of the frequency spectrum, it is crucial that your receiver's output be compatible. The CVSUB50 should only be used with receivers or processors that have digital surround decoders, such as Dolby* Digital or DTS.® Do not use the CVSUB50 with components that output a full-range signal through the subwoofer output or with components that only have a line-level (preamp) output, unless an outboard low-pass crossover is used to filter the signal.

Use the line-level input jack marked "LFE" for the low-frequency effects channel. Connect this jack to the LFE (subwoofer) output on your receiver or processor. Connect each speaker to the corresponding speaker terminals on your receiver or amplifier.

Make sure that you have configured your surround sound processor for "Subwoofer On." Also configure your receiver for 5.1-, 6.1- or 7.1-channel operation, as appropriate. The front left, front right, center and rear speakers should all be set to "Small." If your receiver allows you to set the crossover frequency between the subwoofer and the main speakers, select 90Hz or the setting that is the closest frequency below it (80Hz if available).



TROUBLESHOOTING

If there is no sound from any of the speakers:

• Check that receiver/amplifier is on and a source is playing.

• Check that the powered subwoofer is plugged in, and is turned on (Power switch Ⓐ pushed in).

• Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• Review proper operation of your receiver/amplifier.

If there is no sound coming from one speaker:

• Check the "Balance" control on your receiver/amplifier.

• Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• In Dolby Digital or DTS modes, make sure that the receiver/processor is configured so that the speaker in question is enabled.

• Turn off all electronics and switch the speaker in question with one of the other speakers that is working correctly. Turn everything back on, and determine whether the problem has followed the speaker, or has remained in the same channel. If the problem is in the same channel, the source of the problem is most likely with your receiver or amplifier, and you should consult the owner's manual for that product for further information. If the problem has followed the speaker, consult your dealer for further assistance or, if that is not possible, visit www.jbl.com.

If there is no sound from the center speaker:

• Check all wires and connections between receiver/amplifier and speaker. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• If your receiver/processor is set in Dolby Pro Logic mode, make sure the center speaker is not in phantom mode.

• If your receiver/processor is set in one of the Dolby Digital or DTS modes, make sure the receiver/processor is configured so that the center speaker is enabled.

If the system plays at low volumes but shuts off as volume is increased:

• Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

• If more than one pair of main speakers is being used, check the minimum impedance requirements of your receiver/amplifier.

If there is low (or no) bass output:

• Make sure the connections to the left and right "Speaker Inputs" have the correct polarity (+ and –).

• Make sure the subwoofer is plugged into an active electrical outlet, and is turned on (Power switch Ⓐ pushed in).

• In Dolby Digital or DTS modes, make sure your receiver/processor is configured so that the subwoofer and LFE output are enabled.

• Switch the Phase Switch Ⓒ to the opposite position, and select the position that results in the most pleasing bass response.

If there is no sound from the surround speakers:

• Check all wires and connections between receiver/amplifier and speakers. Make sure all wires are connected. Make sure none of the speaker wires are frayed, cut or punctured, or touching each other.

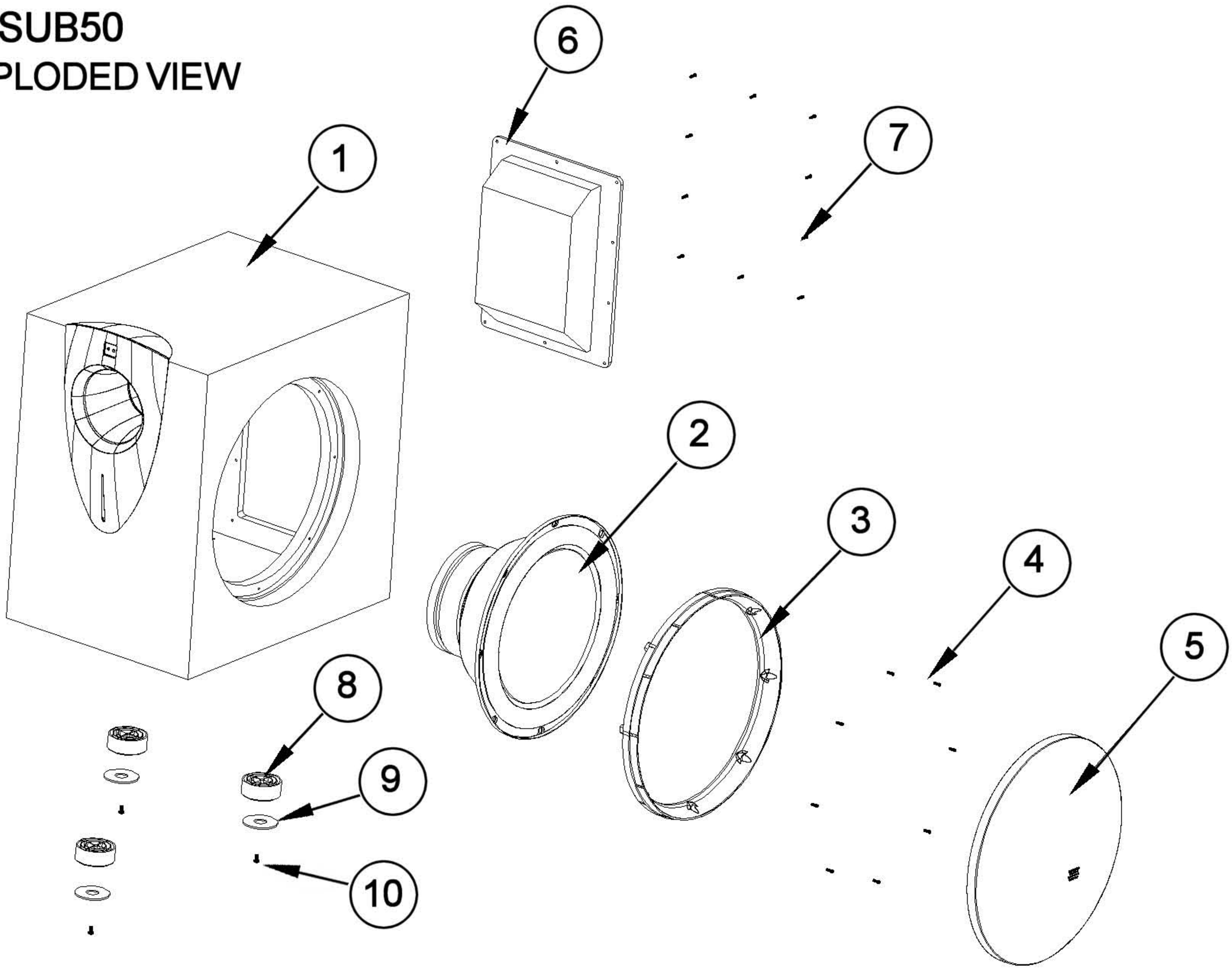
• Review proper operation of your receiver/amplifier and its surround sound features.

• Make sure the movie or TV show you are watching is recorded in a surround sound mode. If it is not, check to see whether your receiver/amplifier has other surround modes you may use.

• In Dolby Digital or DTS modes, make sure your receiver/processor is configured so that the surround speakers are enabled. When five satellites are in use, remember to configure your receiver or processor for 6.1-channel operation, and when six satellites are in use, configure your receiver or processor for 7.1 channels.

• Review the operation of your DVD player and the jacket of your DVD to make sure that the DVD features the desired Dolby Digital or DTS mode, and that you have properly selected that mode using both the DVD player's menu and the DVD disc's menu.

CVSUB50
EXPLODED VIEW



Ref #	Part Number	Description	Qty
1	Not for Sale	CVSUB50 Enclosure	1
2	30PR14FZD-DW01	12" Woofer	1
3	213-120-05033-0BA	Trim Ring/Retainer	1
4	352-DM04035D366	Woofer/Ring Screws	8
5	329-120-05046-0BA	Grille	1
6	Not for Sale	CVSUB50 Amplifier	1
7	352-DM04020D367	Amplifier Screws	10
8	321-ABS-05002-0VA	Main Feet	4
9	320-NBR-00208	Foot Pad	4
10	352-HM04030D500	Feet Screws	4

SERVICE NOTE

Access to woofer:

1) Carefully pry metal grille out of its recess with a sharp pointed instrument such as an awl –USE CAUTION. Work evenly around the perimeter until the grill can be removed.
2) Remove the (8) Phillips screws holding the trim ring and woofer to the cabinet.
3) After service, replace the woofer and re-insert the grille back into its recess until it's fully seated.

CVSUB50 TEST PROCEDURE

SYSTEM AURAL SWEEP TEST

Equipment needed:

- Function/signal generator/sweep generator
- Multimeter
- Integrated Amplifier
- Speaker Cables

General Unit Function (UUT = Unit Under Test)

Phase switch – either position

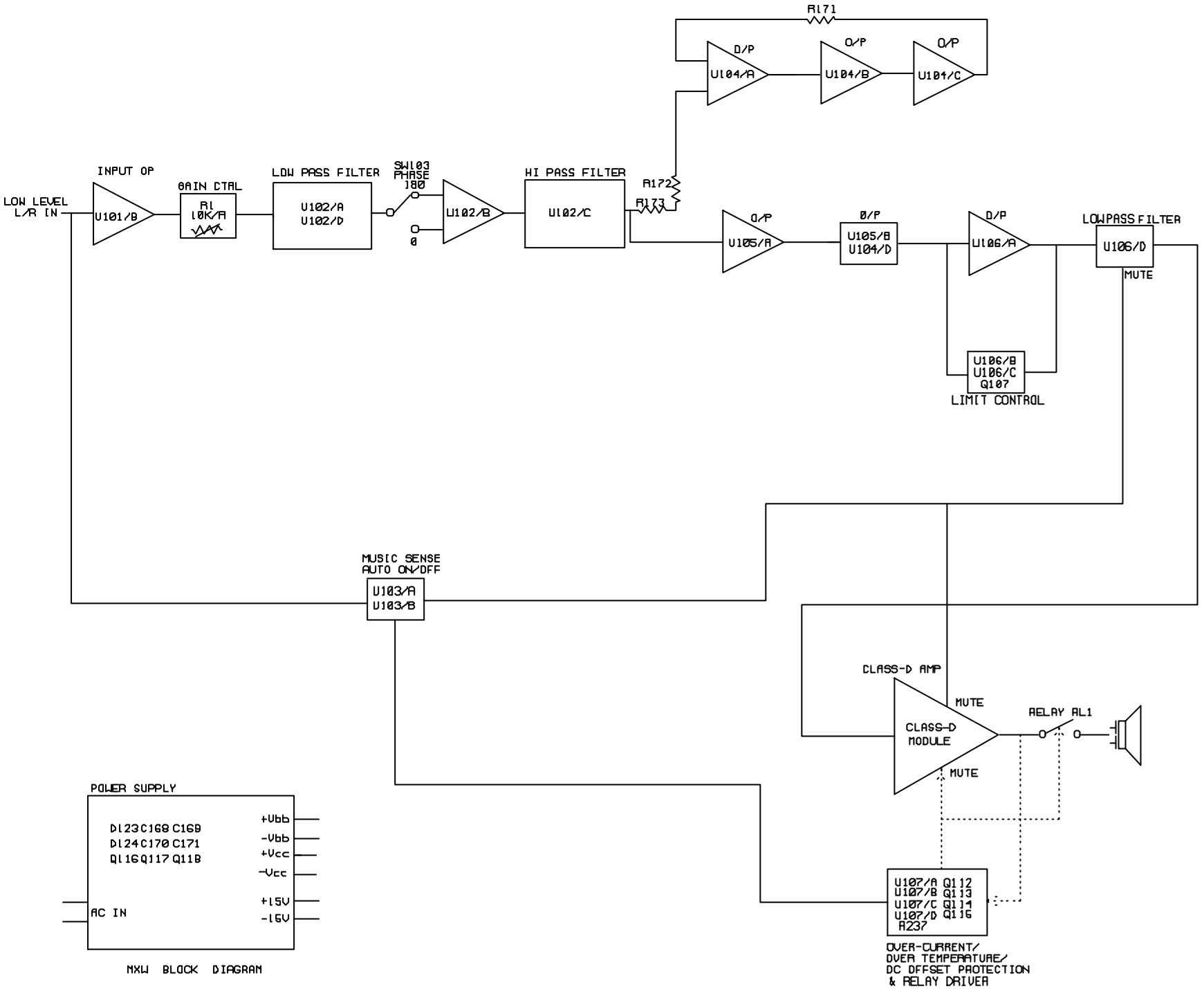
1) Connect the LFE jack to a signal generator with RCA cable.
2) On the front of the unit, turn the LEVEL control full counterclockwise (MIN).
3) Turn on generator, adjust to **150mV, 50 Hz**.
4) Plug in UUT; turn the power switch ON. Turn LEVEL control full clockwise (MAX)
5) LED should now be Green; immediate bass response should be heard and felt from port tube opening.
6) Turn off generator, turn LEVEL control fully counterclockwise (MIN), disconnect RCA cable.

Sweep Function

1) Follow steps 1-4 above, using a sweep generator as a signal source.
2) Sweep generator from 20Hz to 1kHz. Listen to the cabinet and drivers for any rattles, clicks, buzzes or any other noises. If any unusual noises are heard, remove woofer and test.

Driver Function (Woofer)

1) Remove woofer from cabinet; detach + and - wire clips.
2) Check DC resistance of woofer; it should be **3.4 ohms**±10%.
3) Connect a pair of speaker cables to driver terminals. Cables should be connected to an integrated amplifier fed by a signal generator. Turn on generator and adjust so that speaker level output is 5.0V.
4) Sweep generator from 20Hz to 1kHz. Listen to driver for any rubbing, buzzing, or other unusual noises.

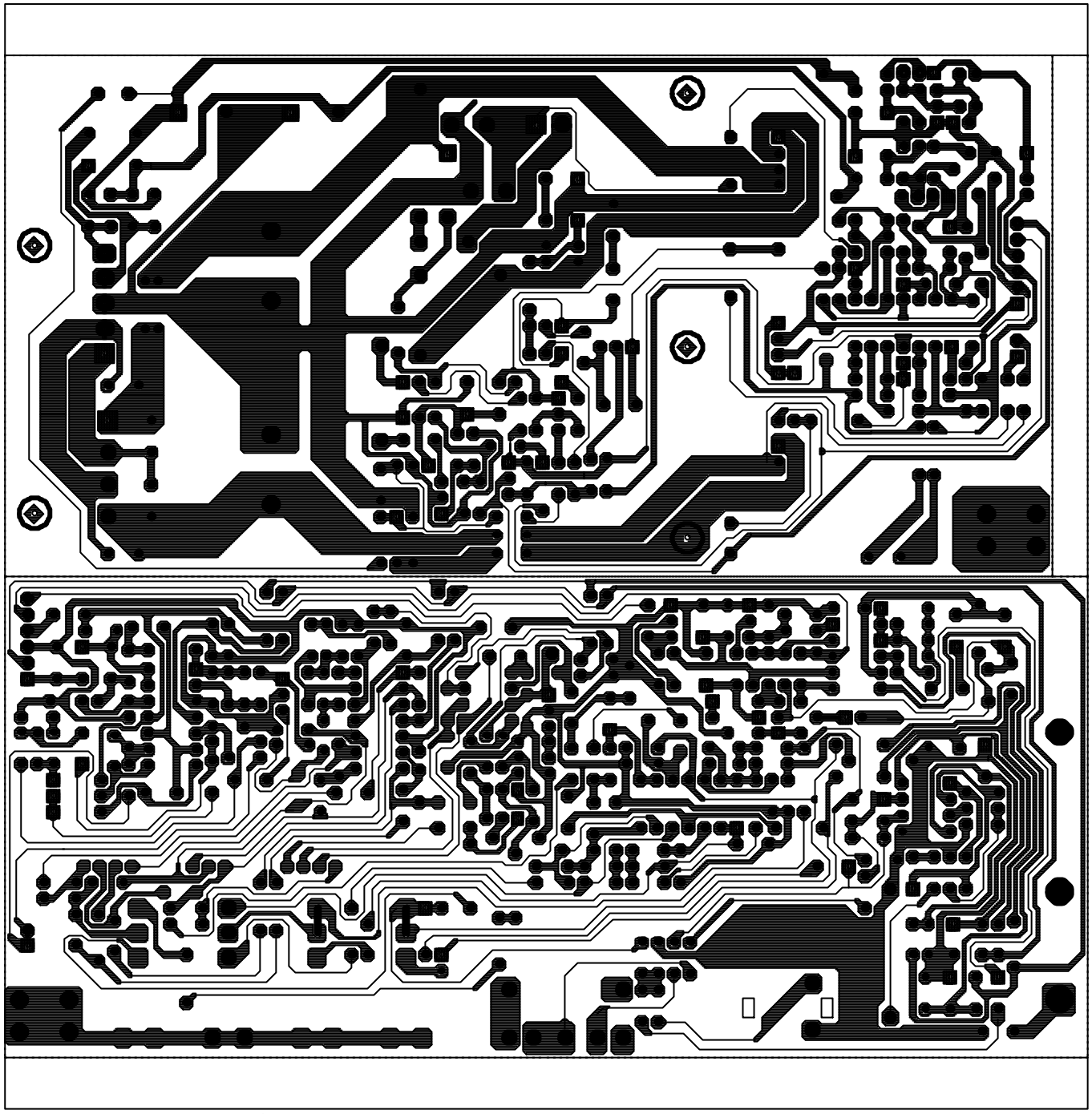


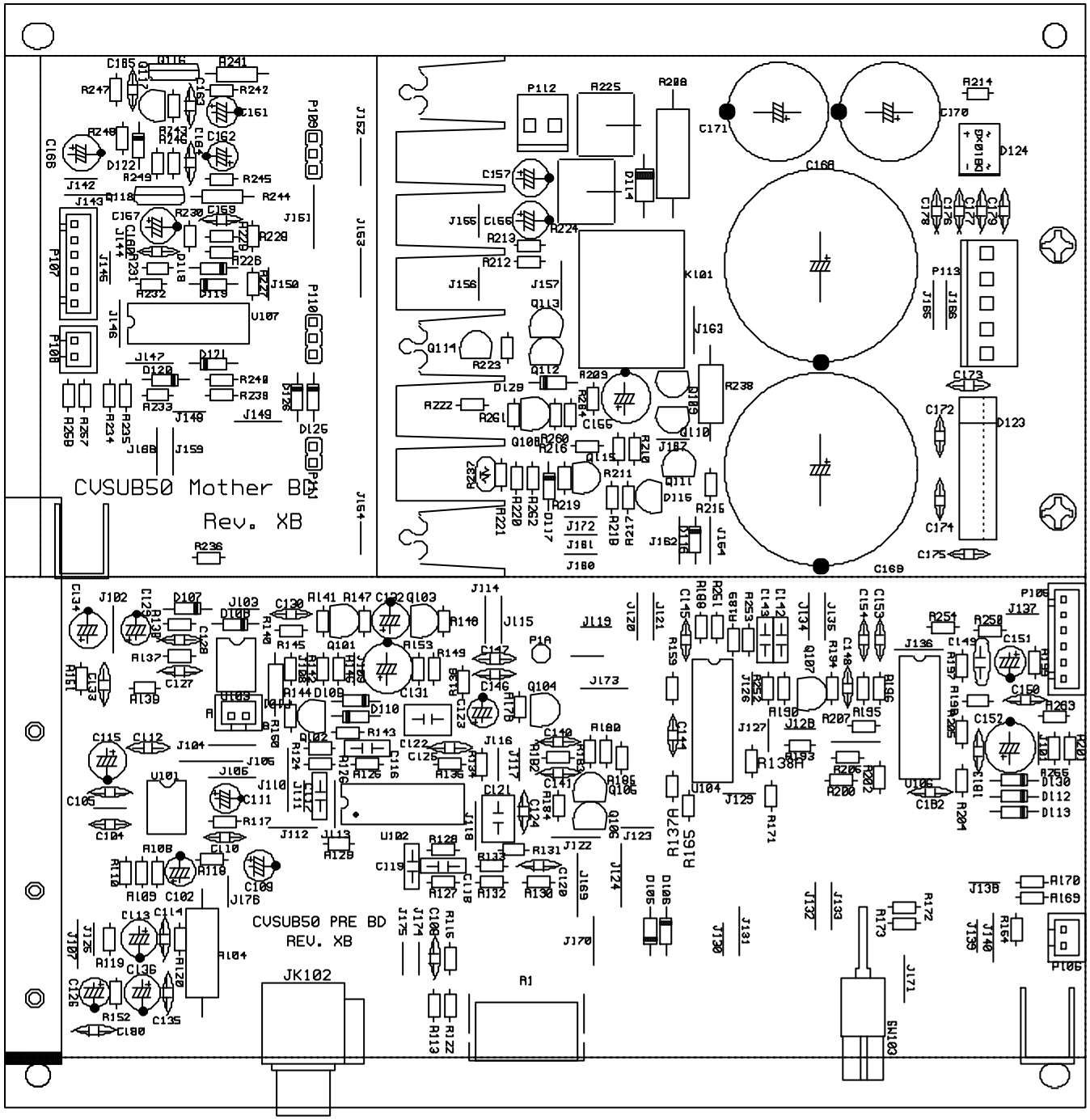
MXW BLOCK DIAGRAM

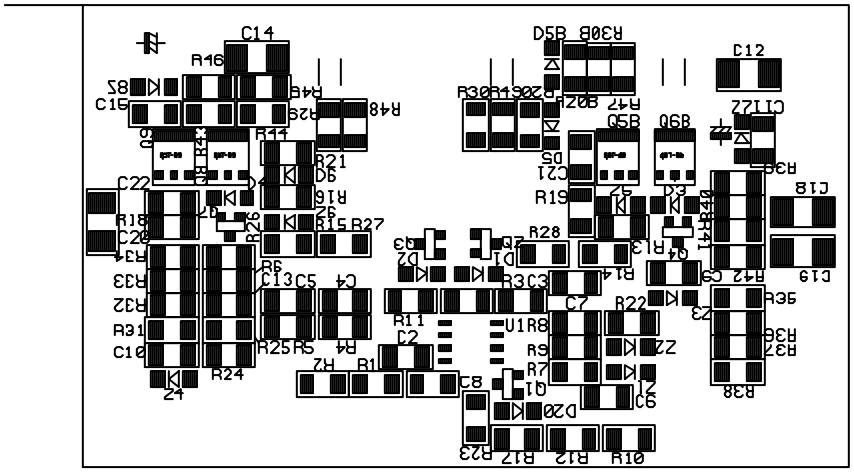
CVSUB50 Electrical Parts List			
Part Numbers	Description	Qty	Reference Designators
MAIN/INPUT PCB's			
Resistors			
110-14152j26	Resistor 1.5K 1/4W ±5%CF 26mm	1	R150
110-16101J26	Resistor 100Ω 1/6W ±5%CF 26mm	3	R113,151,152
110-16102j26	Resistor 1K 1/6W ±5%CF 26mm	4	R210,239,264,140
110-16103j26	Resistor 10K 1/6W ±5%CF 26mm	20	R227,229,230,231,232,233,260,261,263,118,126,129,133, 136,146,149,196,199,137A,138A
110-16105j26	Resistor 1M 1/6W ±5%CF 26mm	1	R145
110-16151j26	Resistor 150Ω 1/6W ±5%CF 26mm	1	R139
110-16153j26	Resistor 15K1/6W ±5%CF 26mm	2	R247,249
110-16154j26	Resistor 150K1/6W ±5%CF 26mm	1	R138
110-16182j26	Resistor 1.8K1/6W ±5%CF 26mm	1	R248
110-16183j26	Resistor 18K1/6W ±5%CF 26mm	1	R147
110-16203j26	Resistor 20K1/6W ±5%CF 26mm	1	R200
110-16221j26	Resistor 220Ω 1/6W ±5%CF 26mm	2	R119,120
110-16222j26	Resistor 2.2K1/6W ±5%CF 26mm	2	R242,245
110-16223j26	Resistor 22K1/6W ±5%CF 26mm	5	R218,220,223,141,148
110-16274j26	Resistor 270K1/6W ±5%CF 26mm	1	R240
110-16333j26	Resistor 33K1/6W ±5%CF 26mm	1	R211
110-16334j26	Resistor 330K1/6W ±5%CF 26mm	1	R209
110-16391j26	Resistor 390Ω 1/6W ±5%CF 26mm	2	R243,246
110-16432j26	Resistor 4.3K1/6W ±5%CF 26mm	1	R254
110-16472j26	Resistor 4.7K1/6W ±5%CF 26mm	6	R217,219,222,144,250,213,
110-16473j26	Resistor 47K1/6W ±5%CF 26mm	2	R221,137
110-16474j26	Resistor 470K1/6W ±5%CF 26mm	1	R143
110-164r7j26	Resistor 4.7Ω 1/6W ±5%CF 26mm	1	R153
110-16683j26	Resistor 68K1/6W ±5%CF 26mm	1	R212
112-14101j26	Fusible Resistor 1/4w 100ohm 5%	1	R241,244
116-161001f26	Metal Film Resistor 1K 1/6W±1% MF26mm	1	R194
116-161002f26	Metal Film Resistor 10K 1/6W±1% MF26mm	8	R130,131,132,159,171,173,234,235,
116-161073f26	Metal Film Resistor 107K 1/6W±1% MF26mm	1	R190
116-161301f26	Metal Film Resistor 1.30K 1/6W±1% MF26mm	3	R226,228,236,
116-161504f26	Metal Film Resistor 1.5M 1/6W±1% MF26mm	1	R142
116-161693f26	Metal Film Resistor 169k 1/6W±1% MF26mm	1	R195
116-161822f26	Metal Film Resistor 18.2k 1/6W±1% MF26mm	1	R214
116-162001f26	Metal Film Resistor 2k 1/6W±1% MF26mm	2	R202,215
116-162052f26	Metal Film Resistor 20.5k 1/6W±1% MF26mm	2	R197,198
116-162151f26	Metal Film Resistor 2.15k 1/6W±1% MF26mm	1	R251
116-162210f26	Meltal Film Resistor 221Ω 1/6W ±5%CF 26mm	1	R252
116-162211f26	Metal Film Resistor 2.21k 1/6W±1% MF26mm	1	R172
116-162212f26	Metal Film Resistor 22.1k 1/6W±1% MF26mm	3	R193,204,206
116-162322f26	Metal Film Resistor 23.2k 1/6W±1% MF26mm	4	R124,125,127,128
116-162371f26	Metal Film Resistor 2.27k 1/6W±1% MF26mm	1	R253
116-162372f26	Metal Film Resistor 23.7k 1/6W±1% MF26mm	1	R189
116-162492f26	Metal Film Resistor 24.9k 1/6W±1% MF26mm	2	R257,258
116-163400f26	Meltal Film Resistor 340Ω 1/6W ±5%CF 26mm	2	R164,169
116-163923f26	Meltal Film Resistor 392k 1/6W ±5%CF 26mm	1	R201
116-164320f26	Meltal Film Resistor 432k 1/6W ±5%CF 26mm	1	R265
116-164751f26	Meltal Film Resistor 4.75k 1/6W ±5%CF 26mm	3	R108,109,110
116-164752f26	Meltal Film Resistor 47.5k 1/6W ±5%CF 26mm	1	R122
116-164991f26	Meltal Film Resistor 4.99k 1/6W ±5%CF 26mm	2	R205,207
116-165623f26	Meltal Film Resistor 562k 1/6W ±5%CF 26mm	1	R117
116-166041f26	Meltal Film Resistor 6.04k 1/6W ±5%CF 26mm	2	R165,170
116-166491f26	Meltal Film Resistor 6.49k 1/6W ±5%CF 26mm	1	R115
116-166813f26	Meltal Film Resistor 681k 1/6W ±5%CF 26mm	1	R262
116-166982f26	Meltal Film Resistor 69.8k 1/6W ±5%CF 26mm	1	R135
116-167681f26	Meltal Film Resistor 7.68k 1/6W ±5%CF 26mm	1	R134
116-169091f26	Meltal Film Resistor 9.09k 1/6W ±5%CF 26mm	1	R188
110-12621j15	Resistor 620Ω1/2W ±5%	1	R238
110-20152j26	Resistor 1.5K 2W ±5% CF 20mm KINK	1	R208
113-500rlj10	Resistor 0.1Ω5W ±5%	2	R224,225
115-h103a101	Variable Resistor A10K LEVEL	1	R1

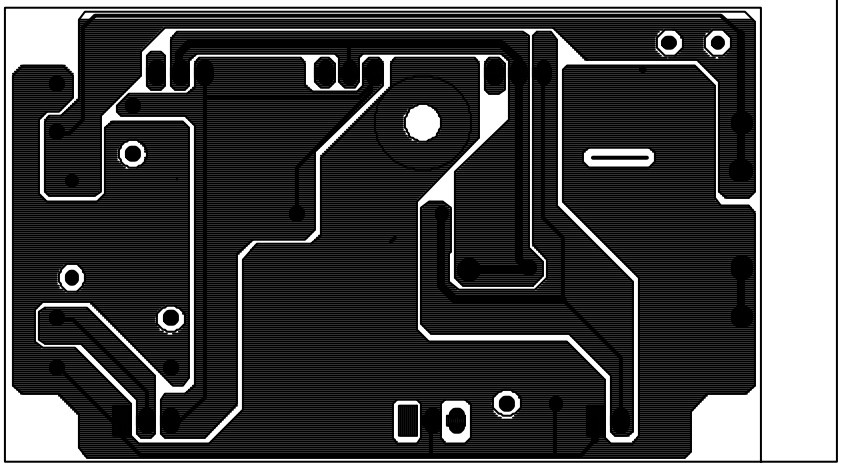
Part Numbers	Description	Qty	Reference Designators
MAIN/INPUT PCB's			
116-201211f20	metal film Resistor 1.21K 2w ± 1%20mm	1	R104
Capacitors			
129-a104j633	Metallize Capacitor 0.1U 63V ±5% MS	2	C116,143
129-a223j633	Metallize Capacitor 0.022U 63V ±5% MS	1	C150
129-A224J633	Metallize Capacitor 0.22uF 63V ±5% MS	2	C121,122
129-a473j633	Metallize Capacitor 0.047U 63V ±5% MS	3	C117,119,149
129-a683j633	Metallize Capacitor 0.068uF 63V ±5% MS	1	C142
130-2b102k503	Disc Capacitor 1000P 50V±10%	3	C165,181,182
130-2b221k503	Disc Capacitor 220P 50V±10%	3	C105,128,108
130-3f473m503	Disc Capacitor 0.047U 50V±20%	1	C180
130-ch101j503	Disc Capacitor 100p 50V±5%	2	C159,160
130-s110k503	Disc Capacitor 100p 50VSL ±10%	3	C110,120,148
130-S1470k503	Disc Capacitor 47p 50V ±10%	1	C127
132-223ja03	mylar capacitor 0.022uF 100V±5%	8	C172,173,174,175,176,177,178,179
135-3105m50	electrolytic 1U 50V ±20%	1	C126
135-3106m50	electrolytic10uF 50V ±20%	4	C109,111,123,129,
135-3107m16	electrolytic100uF 16V ±20%	7	C166,167,113,115,132,134,136,
135-3107m25	electrolytic100u 25V ±20%	1	C152
135-3226m50	electrolytic22u 50V ±20%	3	C161,162,151
135-3227m10	electrolytic220u 10V ±20%	2	C156,157
135-3475m50	electrolytic4.7u 50V ±20%	1	C102
139-3227m16	Low Leakage ec 220uF 16V±20%	2	C155,131
135-4224m35	electrolytic2200UF35V ±20%	2	C170,171
135-4688m80	electrolytic6800U 80V ±20%	2	C168,C169
129-a104j633	Metallize Capacitor 0.1U 63V ±5% MSC	1	C118
Semiconductors			
190-161431c1p1	IC TL431 CLP	1	D115
192-027c1815gr	transistor 2SC1815GR NPN	7	Q101,102,103,110,112,114,117
192-028a1015gr	transistor 2SA1015GR PNP	3	Q111,113,115
192-1672n5551	transistor 2N5551 NPN	1	Q109
192-1682n5401	transistor 2N5401 AI-PNP 350V 500mA TO-92	1	Q108
197-031n4148	diode 100mA 75V SIGNAL 1N4148 ROHM	13	D118,119,120,121,125,126,105,106,108,109,110,112,113,
199-15000565	zener diode5.6V 1/2W 52mm	1	D116
199-15000825	zener diode8.2V 1/2W 52mm	1	D130
199-15001505	zener diode15V 1/2W 52mm	1	D122
199-1502005	zener diode20V 1/2W 52mm	1	D129
162-10309001	LED wire assy 300MM AWG28WHT/BLK	1	P107
190-06m4558d	IC.0PA 4558D DUAL OP-AMP	2	U101,103
190-161m324n	I.C.LM324N QUAD OP-AMP	2	U106,107
190-16t1074cn	IC TL074CN ST QUAD OP-AMP	2	U102,104
192-153mpf102	transistor FAIRCHILD MPF102	1	Q107
192-991d669a	transistor HI-SINCERITY HSD669A NPN	1	Q116
192-992b649t	transistor HSB649T PNP	1	Q118
197-00db103g	diode 1A 200V DF02M BRIDGE	1	D124
197-00kbu1003	diode 100A 200V KBU103G BRIDGE	1	D123
197-101n4002	diode IN4002	1	D114
Miscellaneous			
180-t00ts81	SWITCH TACT L101 T2	1	SW103
109-ltsc103j0	Thermister TSC05103J	1	R237
171-udhss124d	Relay 5A 24V UDH-SS124D	1	K101
174-0rca108gv	Jack RCA-108GV JK203	1	JK102
175-1c02p01	Wire connector&base 2 PIN PITCH=2.5mm	3	P106,108,101
175-1C06v01	Wire connector&base6 PIN PITCH=205mm	1	P105
175-1d02v01	Wire connector&base2PIN PITCH=3.96mm	1	P112
175-1d05v01	Wire connector&base5PIN PITCH=3.96mm	1	P113

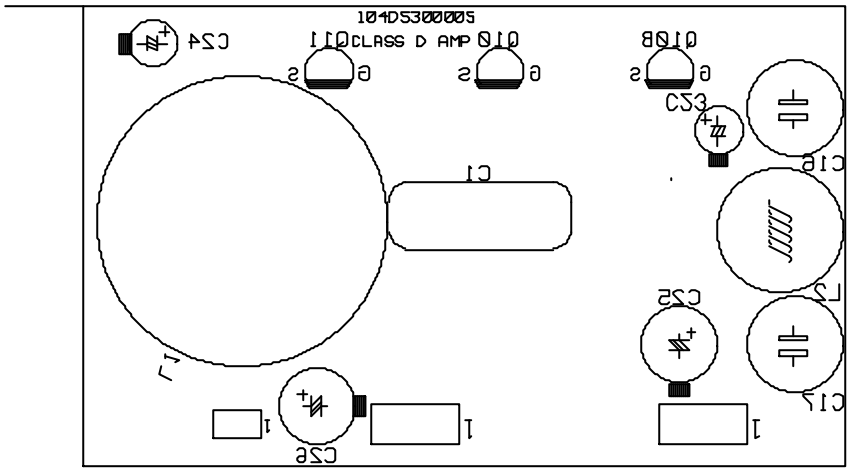
Part Numbers	Description	Qty	Reference Designators
Power Amp Class D Module part# 051-A00444C01 RECOMMENDED: REPLACE ENTIRE MODULE			
118-12061001j	SMD Resistor 1.00K 1206 5%	1	R2
118-12061002j	SMD Resistor 10.0K 1206 5%	6	R25,29,30B,7,9
118-120610r0j	SMD Resistor 10.0Ω 1206 5%	4	R20,20B,22,23
118-12062002j	SMD Resistor 20KΩ 1206 5%	1	R26
118-12062201j	SMD Resistor 2.2KΩ 1206 5%	19	R6,13,16,31,33,34,35,36,36,38,39,40,41,42,43,44,45,46,32,
118-12062204j	SMD Resistor 2.2MΩ 1206 5%	1	R4
118-12062701j	SMD Resistor 2.7KΩ 1206 5%	1	R10
118-12063000j	SMD Resistor 300.0Ω 1206 5%	1	R24
118-12063301j	SMD Resistor 3.30K 1206 5%	5	R1,14,15,27,28,
118-12063902j	SMD Resistor 39.0K 1206 5%	1	R3
118-12064700j	SMD Resistor 470Ω 1206 5%	3	R3,11,21
118-12064701j	SMD Resistor 4.7KΩ 1206 5%	2	R5,12
141-c0101k50	SMD Capacitor 100pF 50V 10% 1206 NPO	1	C4
141-c0220k50	SMD Capacitor22pF 50V 10% 1206 NPO	1	C5
141-c0561k50	SMD Capacitor 560pF 50V 10% 1206 NPO	1	C6
141-c5104m50	SMD Capacitor 1206Y5V 0.1uF 50V±20%	8	C2,3,7,8,9,10,11,15
141-C7223K50	SMD Capacitor 0.022uF 50V 10% 1206 X7R	1	C13
141-d7104ka0	SMD Capacitor 0.1uF100V 10% 1206 X7R	4	C12,14,18,19,
141-d7104ka0a	SMD Capacitor AVX 0.1uF100V 10% 1210 X7R	1	C20
190-16t1072dts	SMD I.C.TL072CDT SGS THOMSON	1	IC1
192-09124126qs	SMD transistor 2SC2412K-T146Q/r OHM	2	Q1,4
192-09139066rs	SMD transistor 2SC3906K-T146Q/r OHM	2	Q2,8
192-091sc4672	SMD transistor 2SC4672K(MPT3) ROHM	1	Q5B
192-09210376qs	SMD transistor 2Sa1037K-T146Q/r OHM	2	Q7,9
192-1682n5401	SMD transistor 2n5401 AI-PNP 350V	1	Q6B
197-03rls4148s	SMD diode RLS4148-TE11 ROHM	8	D1,2,3,4,5,5B,6,200
199-15000563s	zener diode5.6V 5% PHILIPS	2	Z1,2
199-150001203S	zener diode121V 5% PHILIPS	4	Z3,4,5,6,
122-1315k0190	inductor CHOKE SA-500-280	1	L1
122-14300K4	inductor Ferrite core LD1215*300KU	1	L2
128-e106ma01-s	Non-Polar EC. 10uF 100V 20%	2	C16,C17
132-105kb50	mylar capacitor 1uF 250V±10%	1	C40
175-9f40hr2	wire connector 40PIN PITCH=2.54mm	1	
192-232irf9640	transistor FET IRF9640 IR P-CH TO220	2	Q10,Q10B
192-233f640n	transistor FET IRF640n INTERNATIONAL	1	Q11
MISCELLANEOUS			
150-r1107005	power transformer	1	
152-u602015a	line cord SVTFT-2 6FT	1	
154-k31505t0	Fuse 3.15a 250v 30mm UL/CSA/PSE	1	
155-630R345b	fuse holder UL/CSA ψ6*30mm	1	
162-10100022	WIRE UL/CSA 1617#22 100mm	1	
162-50309001	wire 300mm WHT/BLK	1	P108,
162-5055d001	LED wire assy 28SWG 2PIN 550MM	1	LED
166-5070a4bd	speaker were 700mm #18 UL1015	1	
176-wjce2	wire connector &Base CE-2	1	
180-pspaw7az	Switch PUSH SWITCH	1	M100
193-0s4211	INSULATOR(INSULATION SPACER)	1	
193-201612tr	INSULATOR T0-220 16mm*12mm	1	
193-201815t2	INSULATOR		

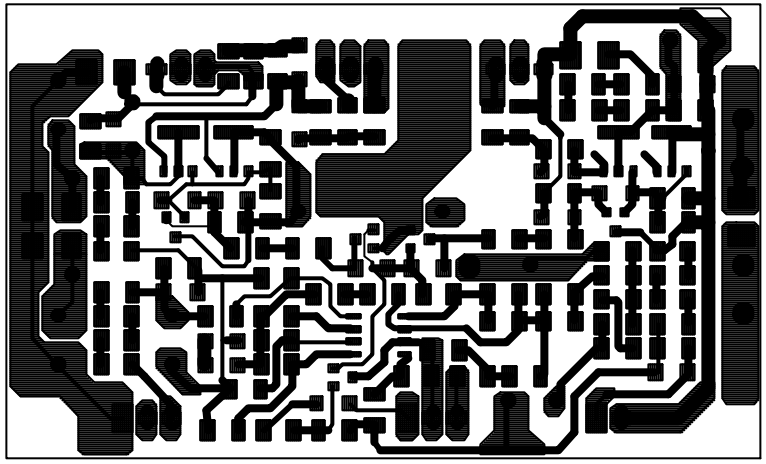



CVSUB50 Mother BD
Rev. XB
CVSUB50 PRE BD
REV. XB
JK102



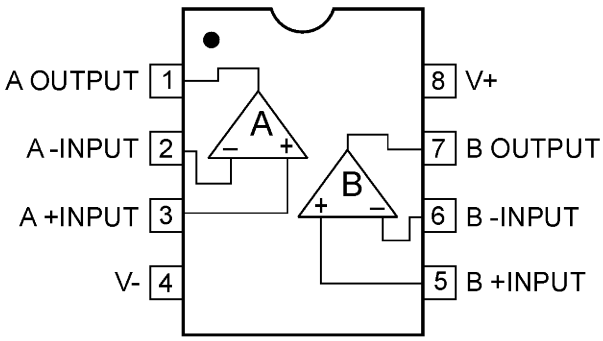



104DS300005
CLASS D AMP

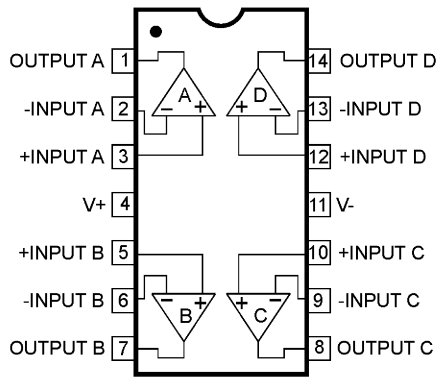


Integrated Circuit Diagrams

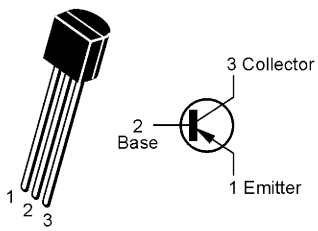
4558, TL072 DUAL OP-AMP
IC1, U101,103



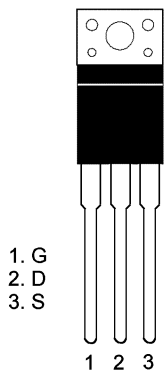
OPAMP,
QUAD 14P DIL TL074 LM324
U102,104,106,107



2N5401
Q6B, 108

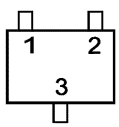


MOSFET IRF640, 9640
Q10,10B,11



* MMBT3906LTI SOT23
2SC4672K(MPT3)
2Sa1037K-T146Q/r

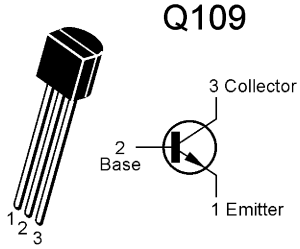
Q1,2,4,5B,7,8,9



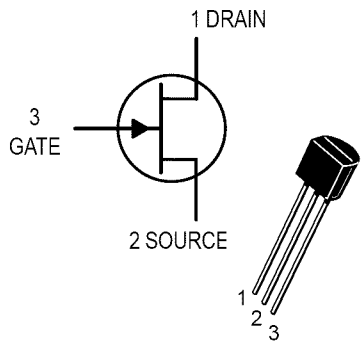
1) Emitter
2) Base
3) Collector

* PREFIX MAY BE "FMMT"

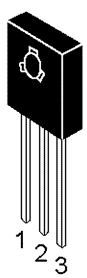
2N5551
Q109



MPF102
Q107

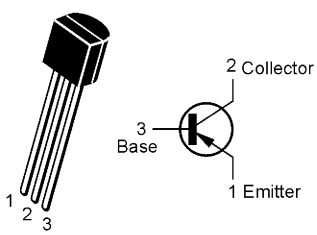


HSD669A, HSB649A
Q116,118

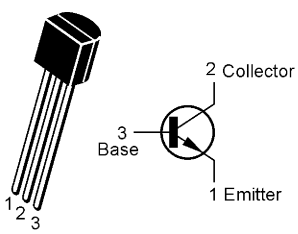


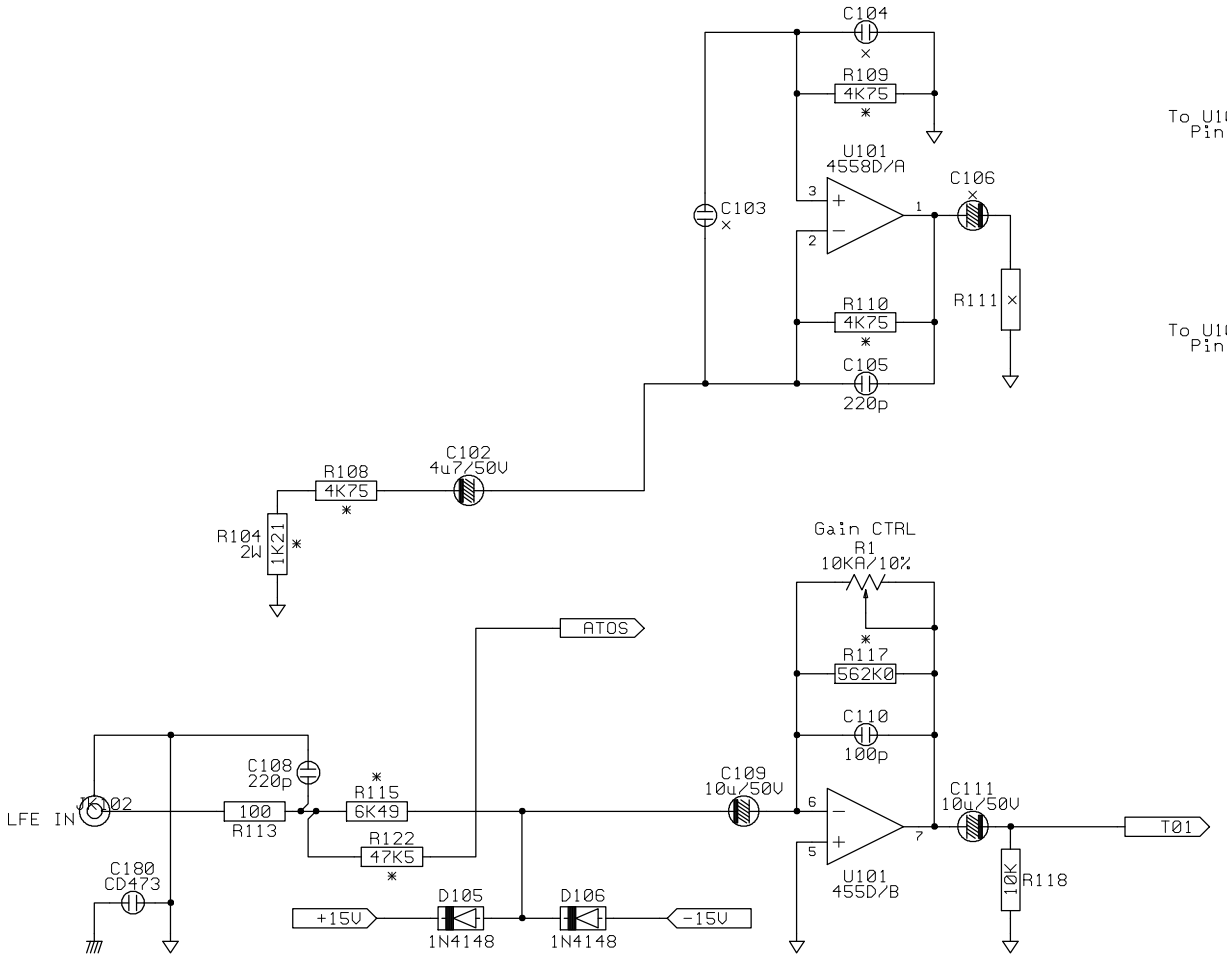
1. Emitter
2. Collector
3. Base

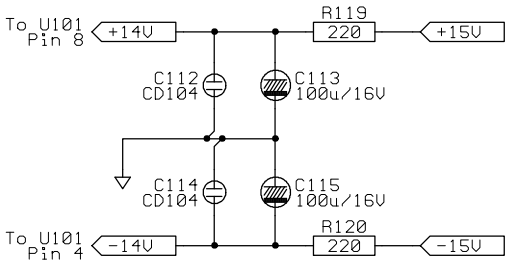
2SA1015
Q111,113,115



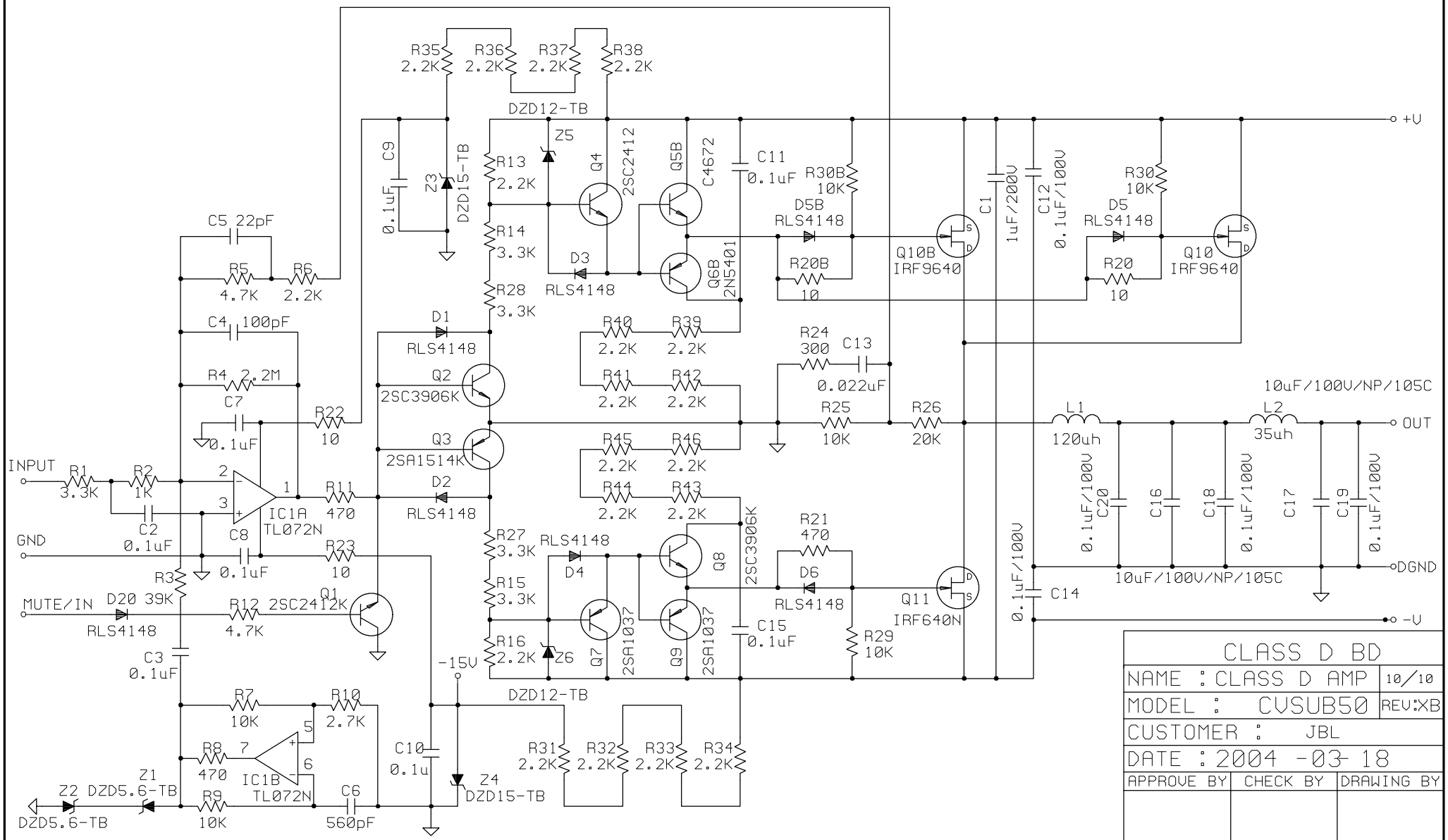
2SC1815
Q101,102,103,110,112,114,117

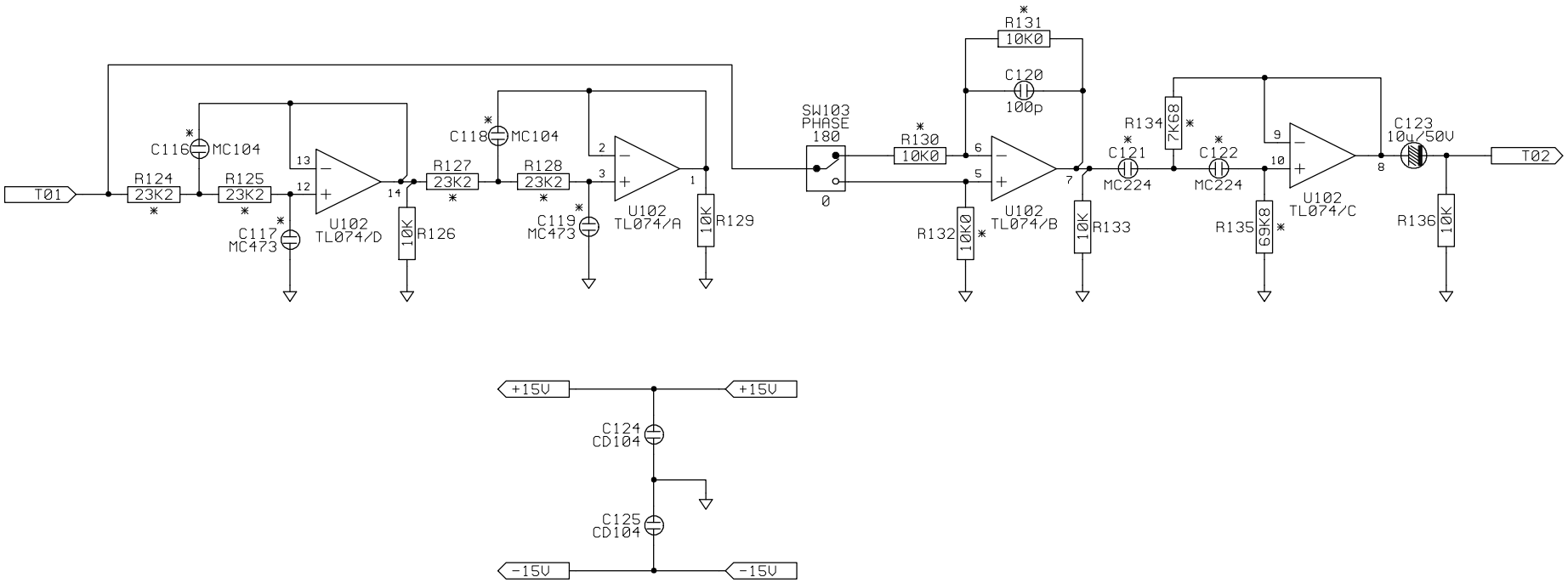




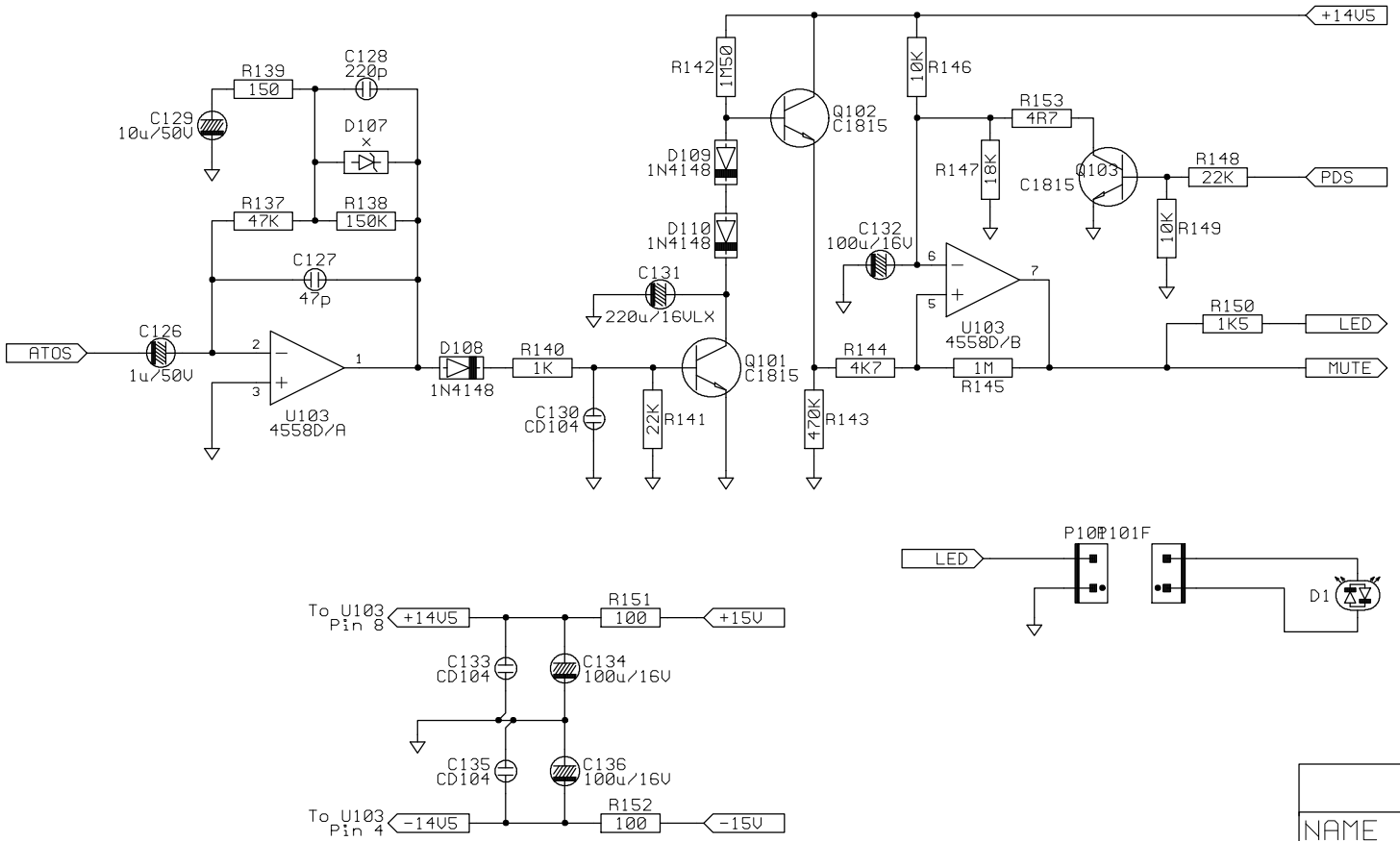


PRE BD		
NAME : Input		1/10
MODEL : CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY

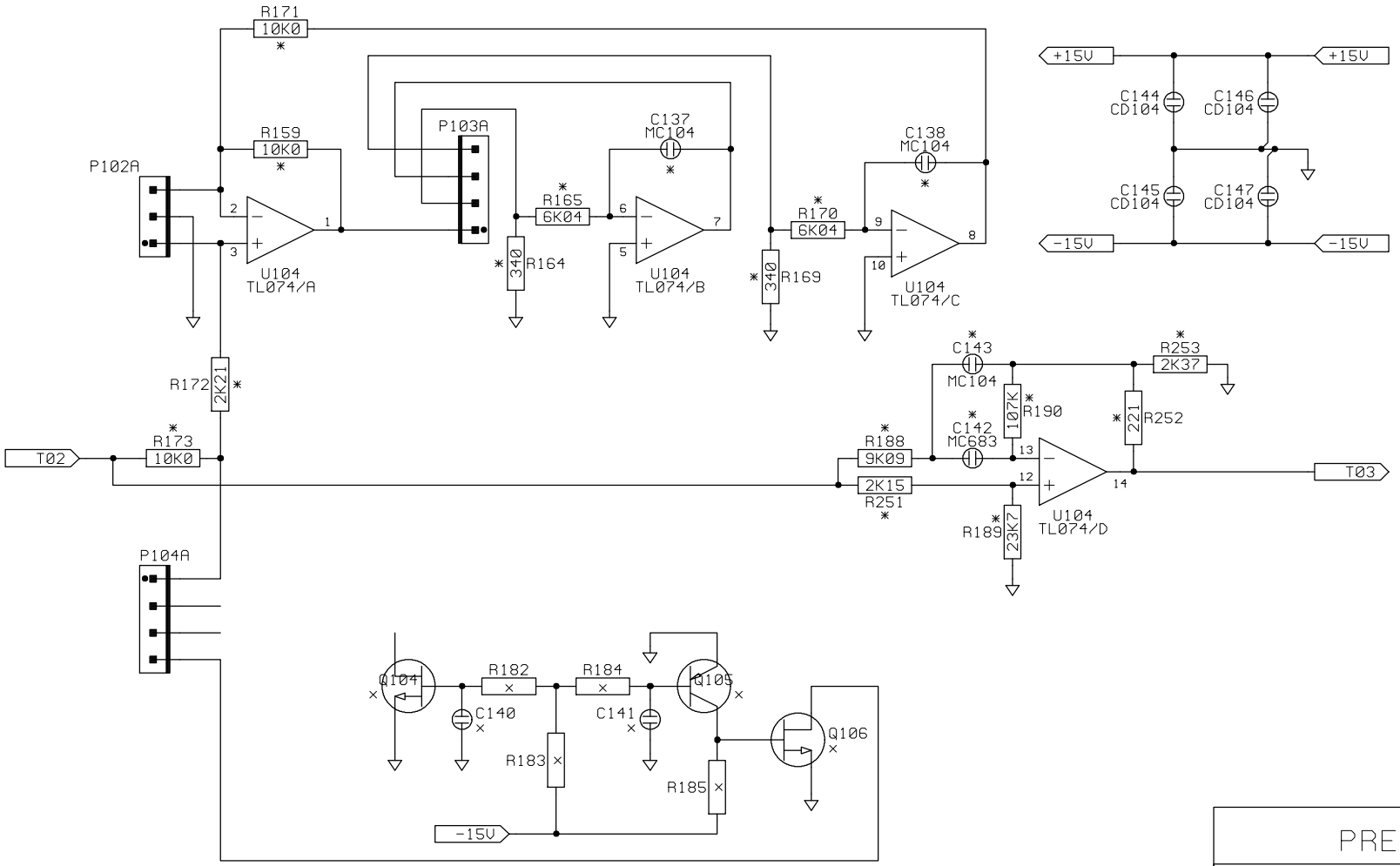

R35 2.2K
R36 2.2K
R37 2.2K
R38 2.2K
DZD12-TB
Z5
C9 0.1uF
Z3 DZD15-TB
R13 2.2K
Q4 2SC2412
Q5B C4672
C11 0.1uF
R30B 10K
D5B RLS4148
R14 3.3K
D3 RLS4148
R28 3.3K
Q6B 2N5401
R20B 10
Q10B IRF9640
C1 1uF/200V
C12 0.1uF/100V
R30 10K
D5 RLS4148
R20 10
Q10 IRF9640
+V
C5 22pF
R5 4.7K
R6 2.2K
C4 100pF
D1 RLS4148
R40 2.2K
R39 2.2K
R24 300
C13 0.022uF
R4 2.2M
C7
Q2 2SC3906K
R41 2.2K
R42 2.2K
R22 10
0.1uF
Q3 2SA1514K
R25 10K
R26 20K
10uF/100V/NP/105C
L1 120uH
L2 35uH
OUT
R45 2.2K
R46 2.2K
INPUT
R1 3.3K
R2 1K
C2 0.1uF
IC1A TL072N
C8
R11 470
D2 RLS4148
R44 2.2K
R43 2.2K
R21 470
GND
R27 3.3K
D4 RLS4148
Q8 2SC3906K
R23 10
0.1uF
R3
R15 3.3K
D6 RLS4148
Q11 IRF640N
C20 0.1uF/100V
C16
C18 0.1uF/100V
C17
C19 0.1uF/100V
DGND
10uF/100V/NP/105C
MUTE/IN
D20 39K
RLS4148
R12 4.7K
Q1 2SC2412K
R16 2.2K
Z6
Q7 2SA1037
Q9 2SA1037
C15 0.1uF
R29 10K
C14
0.1uF/100V
-V
C3 0.1uF
-15V
R7 10K
R10 2.7K
DZD12-TB
C10 0.1u
R31 2.2K
R32 2.2K
R33 2.2K
R34 2.2K
R8 470
IC1B TL072N
Z1
Z2 DZD5.6-TB
R9 10K
C6 560pF
Z4 DZD15-TB
DZD5.6-TB
CLASS D BD
NAME : CLASS D AMP
10/10
MODEL : CVSUB50
REV:XB
CUSTOMER : JBL
DATE : 2004 -03- 18
APPROVE BY
CHECK BY
DRAWING BY



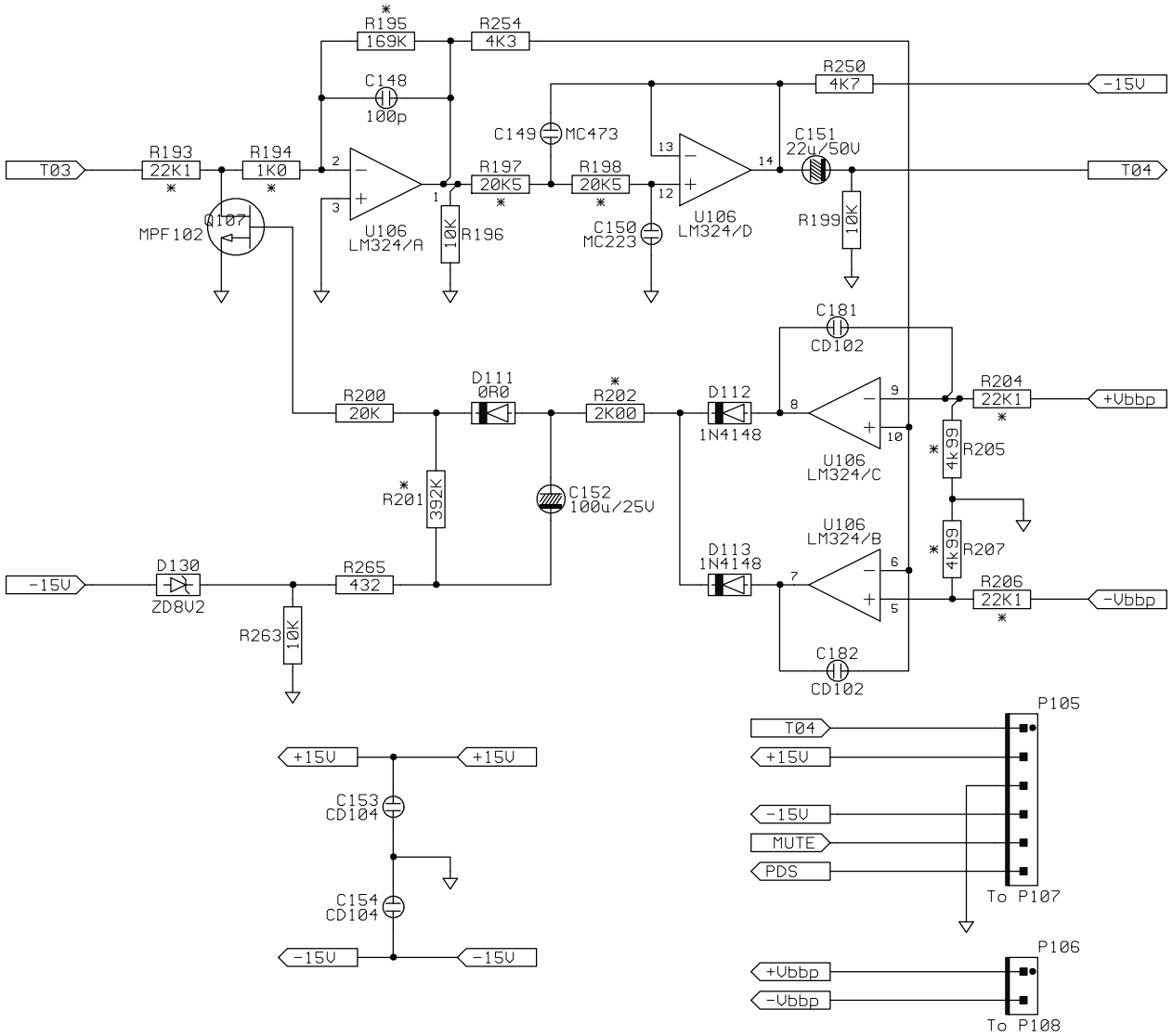
PRE BD		
NAME : Filter		2/10
MODEL :CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY



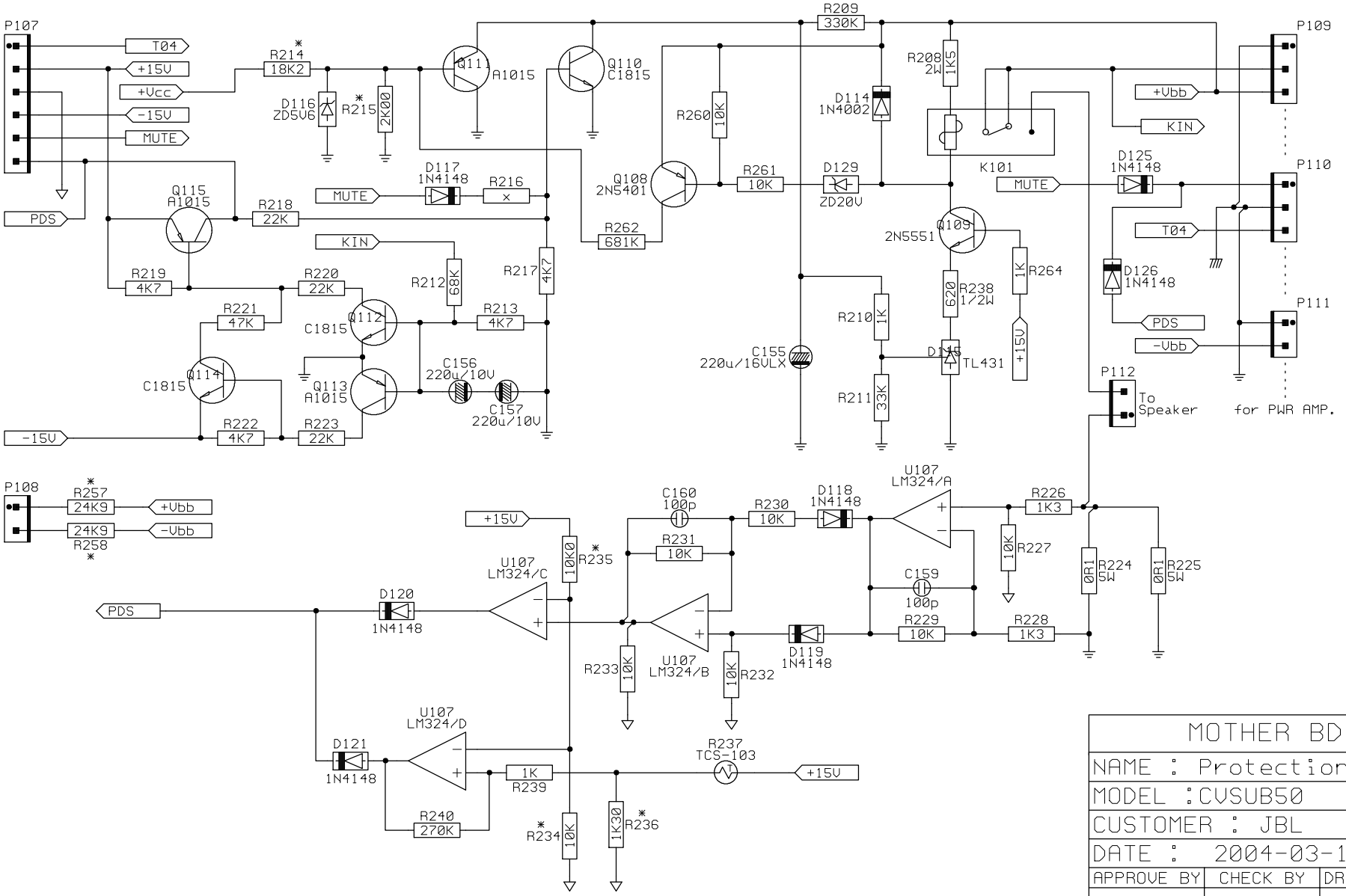
PRE BD		
NAME : Auto ON		3/10
MODEL : CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY



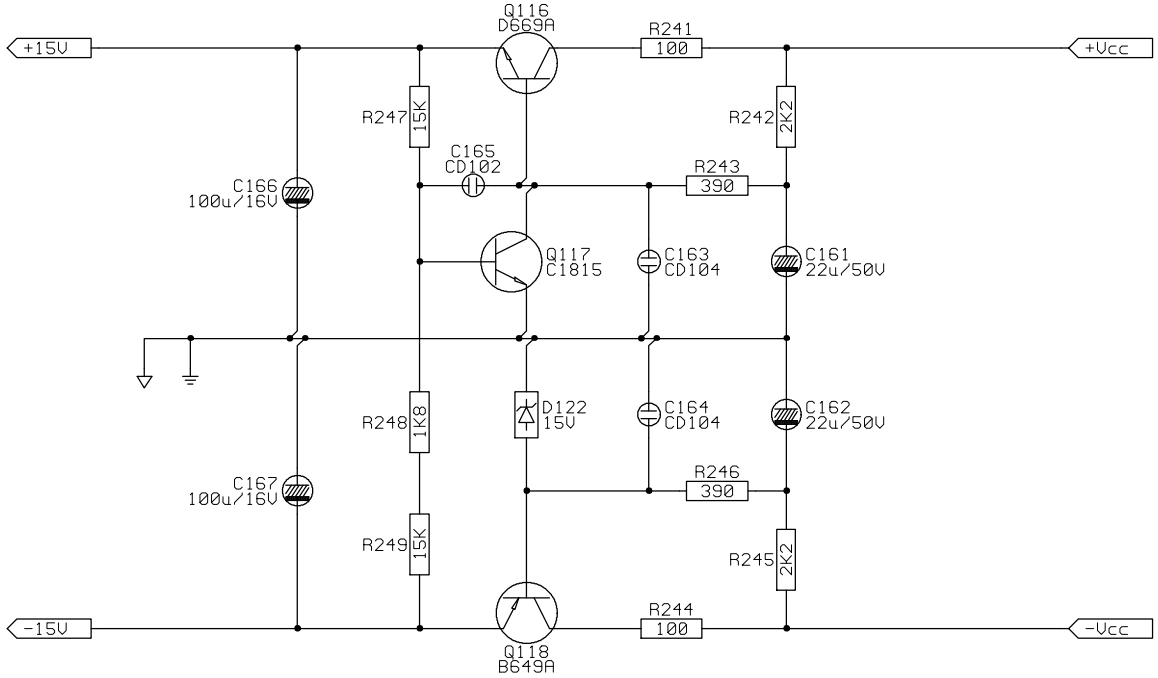
PRE BD		
NAME : NOTCH FTLTER		4/10
MODEL : CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY



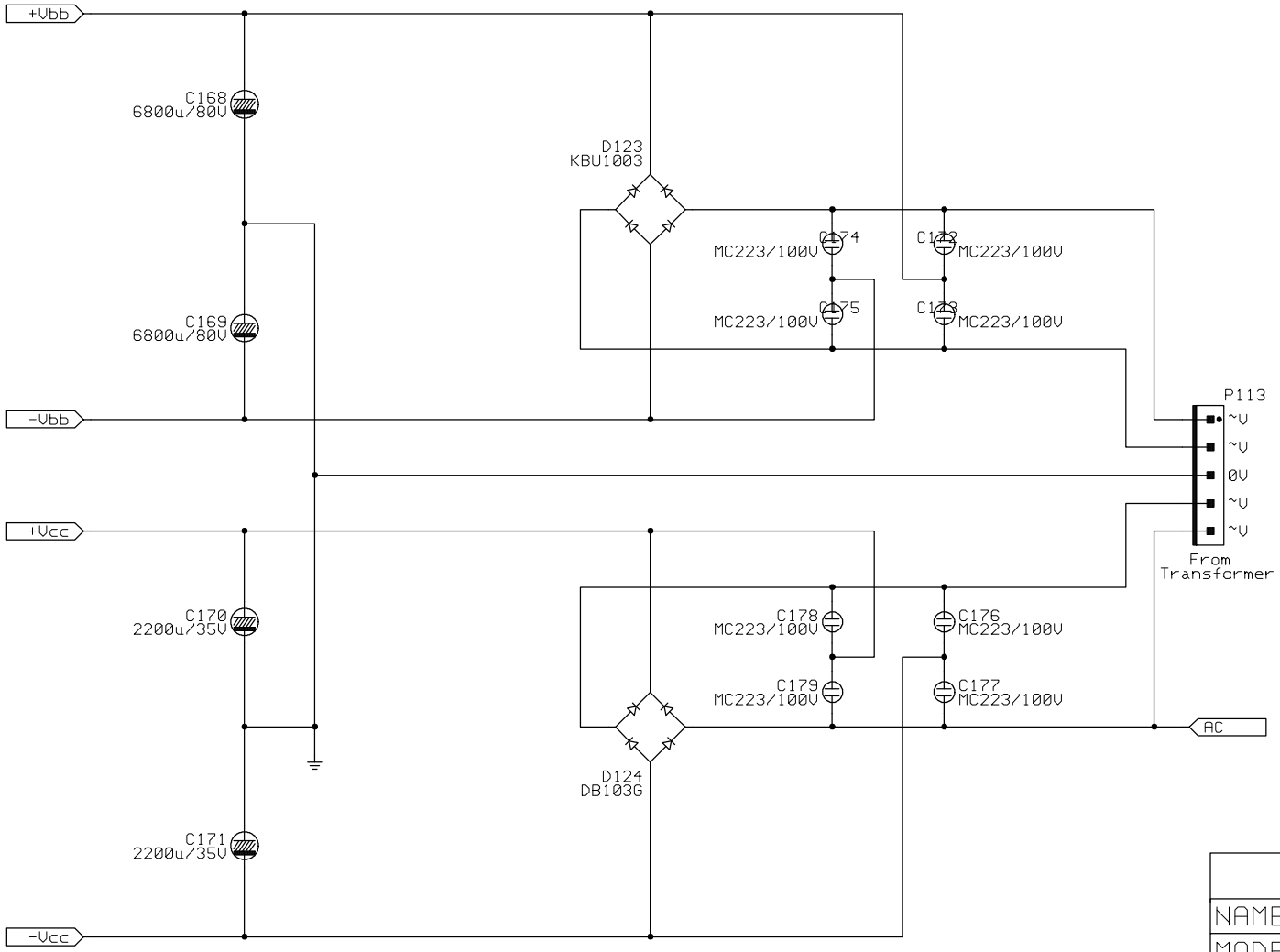
PRE BD		
NAME : Limiter		5/10
MODEL :CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY



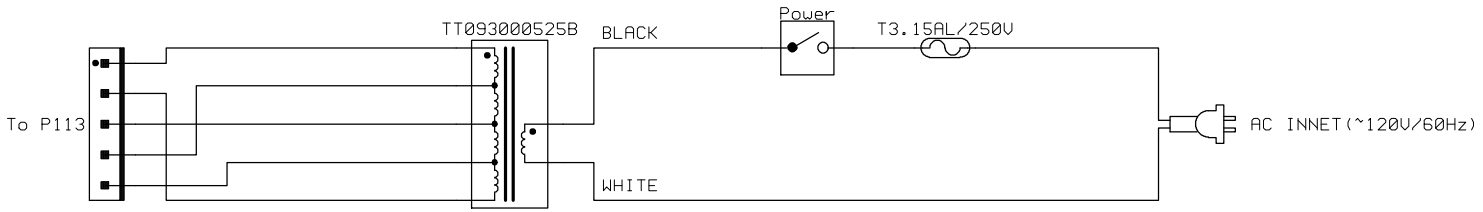
MOTHER BD		
NAME : Protection		6/10
MODEL : CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY



MOTHER BD		
NAME : PN15V Power		7/10
MODEL : CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY

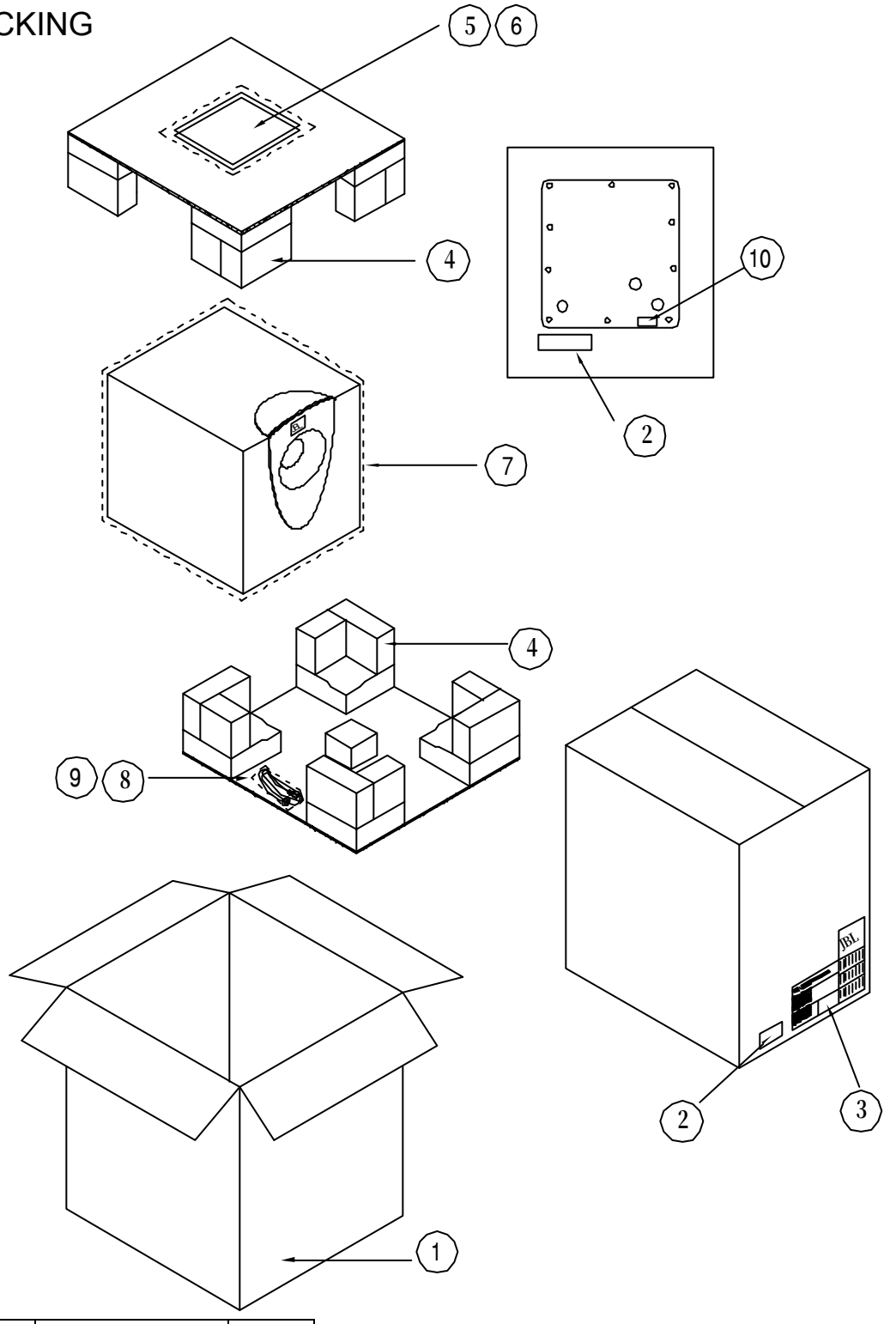


MOTHER BD		
NAME : DC Power		8/10
MODEL : CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY



NAME :AC INNET		9/10
MODEL :CVSUB50		REV:XB
CUSTOMER : JBL		
DATE : 2004-03-18		
APPROVE BY	CHECK BY	DRAWING BY

CVSUB50 PACKING



Ref#	Description	Part Number	Qty
1	Outer Carton	402-000-05170	1
2	Label		1
3	Label		1
4	Packing – top & bottom	431-000-05070	2
5	Owner's manual	406-000-01002	1
6	Warranty Card	405-000-00341	1
7	Plastic bag		1
8	Plastic bag		1
9	Wire	166-015F011	1
10	Label		1